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TITLE:

THE DEFENSE THREAT REDUCTION AGENCY AND REDUCING THE WEAPONS OF MASS DESTRUCTION (WMD) THREAT

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Executive Summary

Title: The Defense Threat Reduction Agency and Reducing the Weapons of Mass Destruction (WMD) Threat

Author: Major Jonathan P. Loney, United States Marine Corps

Thesis: This study provides an examination of the Defense Threat Reduction Agency. It will explore how the Agency's strategic combat support mission influences WMD security operations and relate its applicability to U.S. Marine Corps' Antiterrorism/Force Protection operations.

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY.

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CHAPTER 1

Preface

In the 21st Century, a unified, consistent, and comprehensive approach to deterring reducing WMD threats is essential to maintain U.S. national security. The U.S. Government has agencies involved in WMD security operations that are generally classified as combat (direct offensive operations against enemy forces), combat support (direct support provided to combat agencies), and combat service support (those agencies that support the overall government architecture.) The Defense Threat Reduction Agency's (DTRA) analytical capabilities and expertise ensure that the United States remains ready and able to address present and future WMD threats.

This study was primarily conducted by referencing open source literature and conducting interviews of military and civilian DTRA employees working at the DTRA Headquarters at Fort Belvoir, VA. There were no significant difficulties encountered during the course of my interviews and discussions.

Purpose

The purpose of this study is to examine DTRA's roles, missions, tasks, and interagency responsibilities in the domestic and international area of threat mitigation. The employment, legality, and command and control are the focus of the study. Past and current strategies, policies, organizations, interagency coordination and legal requirements, in hope of identifying possible areas of improvement are also examined.

This document should inform the reader about the importance of DTRA and its contributions to global WMD security operations from a threat reduction standpoint. Daily operations are not normally revealed to the general public because DTRA operates

in close concert with intelligence agencies. At times and in support of certain programs, it does conduct overt operations that reduce and/or eliminate the acquisition of WMD materials by hostile actors.

Definitions

The interchangeable nature of terminology relative to WMD security operations can portray a hodge-podge "vocabulary soup" that can be confusing at best. For example, Atomic, Biological and Chemical (ABC) was an early Cold War term used by the U.S. military in recognition of the primacy of nuclear weapons. Chemical, Biological and Radiological (CBR) more precisely described residual hazard issues, i.e., the blast and heat effects from a nuclear detonation are almost instantaneous while the radiation effects may linger for a long time (the CBR term became common in the late 1950s and the U.S. Navy still uses it today as they tend to reserve the term "nuclear" for power systems.) Finally, Nuclear, Biological and Chemical (NBC) was a term agreed to by NATO during the 1970s. This term remains the official NATO term today and can be found in most service, joint, and multinational doctrinal publications.[1]

For the purpose of this paper, the following keywords and their definitions are defined as[2]:

CBRNE – Chemical, biological, radiological, nuclear, and high-yield explosives. This constitutes the normal acronym that the Department of Defense uses to describe WMD weapons and their general constitution and delivery methods.

Counterterrorism - Offensive measures taken to prevent, deter, and respond to terrorism.

Counter proliferation - those actions taken to defeat the threat and/or use of WMD against the United States, our military forces, friends and allies. There are five subcomponents to

this term: detect and monitor, prepare to conduct CP operations, conduct offensive operations, WMD active defenses, and WMD passive defenses.

Consequence Management - CM are those actions taken to respond to the consequences and effects of WMD use against our homeland, forces and US interests abroad, and to assist friends and allies to restore essential services.

Crisis Action Planning - Time sensitive planning for the deployment, employment, and sustainment of assigned and allocated forces and resources that occurs in response to a situation that may result in actual military operations. Crisis action planners base their plan on the circumstances that exist at the time planning occurs.

Defense Support of Civil Authorities - DoD support, including Federal military forces, the Department's career civilian and contractor personnel, and DoD agency and component assets, for domestic emergencies and for designated law enforcement and other activities. The Department of Defense provides defense support of civil authorities when directed to do so by the President or the Secretary of Defense.

Force Protection - Actions taken to prevent or mitigate hostile actions against Department of Defense personnel (to include family members), resources, facilities, and critical information. These actions conserve the force's fighting potential so it can be applied at the decisive time and place and incorporate the coordinated and synchronized offensive and defensive measures to enable the effective employment of the joint force while degrading opportunities for the enemy.

Homeland Security - As defined in the National Strategy for Homeland Security, a concerted national effort to prevent terrorist attacks within the United States, reduce America's vulnerability to terrorism, and minimize the damage and recover from attacks that do occur.

Homeland Defense - Protection of United States sovereign territory, domestic population, and critical defense infrastructure against external threats and aggression or other threats

as directed by the President. The Department of Defense contributes to homeland security through its military missions overseas, homeland defense, and support to civil authorities.

Missile Control Technology Regime - The Missile Technology Control Regime is an informal and voluntary association of countries which share the goals of non-proliferation of unmanned delivery systems capable of delivering weapons of mass destruction, and which seek to coordinate national export licensing efforts aimed at preventing their proliferation.

National Response Framework - A national guide on how to conduct all-hazards responses to various incidents. It is built upon scalable, flexible, and adaptable coordinating structures to align key roles and responsibilities across the Nation, linking all levels of government, nongovernmental organizations, and the private sector. It is intended to capture specific authorities and best practices for managing incidents that range from the serious but purely local, to large-scale terrorist attacks or catastrophic natural disasters. This document is the successor to the National Response Plan.

Nonproliferation - Those actions (e.g., diplomacy, arms control, multilateral agreements, threat reduction assistance, and export controls) taken to prevent the proliferation of WMD that seek to dissuade or impede access to, or distribution of, sensitive technologies, material, and expertise. There are three subcomponents to this term: detect and monitor acquisition and development, conduct NP operations, and conduct security cooperation.

NBC – Nuclear, biological, and chemical. This was one of the terms that have been used by various U.S. and international government agencies to describe elements of weapons of mass destruction. It is interchangeably used with CBRNE in numerous policy papers.

Operational problem – A discrepancy between the state of affairs as it is and the state of affairs as it ought to be that compels military, in concert with other instruments of national power, action to resolve it.

Proliferation – The spread of chemical, biological, nuclear and other weapons of mass destruction to countries not originally involved in developing them.

Terrorism – The calculated use of violence or threat of violence to inculcate fear, intended to coerce governments or societies that are generally used in pursuit of goals that are political, religious, or ideological in nature. Those person(s) or groups who employ terrorist-related acts are normally inferior in size to the State government and/or population that they are intending to influence. Terrorist measures are increasingly being employed with the idea of using WMD incidents to instill widespread fear among a large population.

Weapon of Mass Destruction – Any weapon that is used to inflict a large amount of casualties. WMD weapons are generally categorized as chemical, biological, radiological, nuclear, and/or high-yield explosive (CBRNE) in nature.

WMD Security Operations – A strategic description of full-spectrum operations, generally but not necessarily restricted to governmental D.I.M.E. principles, by DoD and DoD-affiliated agencies to coordinate effective national and international deterrence, response, and management of WMD events. This term is unique to this document and its author.

CHAPTER 2

Introduction

This chapter introduces the modern WMD threat, provides a brief background into how DTRA came into existence, and explains the agency's four main sub-divisions and campaign plans that support its operations in reducing WMD threats.

WMD Threat Overview

The WMD threat is by no means new to the contemporary security operating environment. The evolution of modern chemical warfare, for example, can be traced back to chemical dye developed during World War I by chemist professor Fritz Haber, ironically a Noble Peace prize awardee. He quantified the future development and proliferation of chemical WMD by accurately stating, "In no future war will the military be able to ignore poison gas. It is a higher form of killing." Its subsequent use was first recorded in Ypres, France in 1915.[3]

The Germans are also credited with weaponizing biological agents in the form of Glanders, an infectious disease that primarily affects animals such as goats, donkeys, and horses, and was used against Russian wildlife on the Eastern Front and U.S. forces on the Western Front during World War I.[4]

Although never weaponized by non-state supported actors and used against a given population in an offensive manner, the radiological and nuclear threat constitutes the main worry of the general population. Pictures of atomic bombs and nuclear tests conducted in the Nevada desert, the extensive damage photographed after atomic bomb drops on Hiroshima and Nagasaki, Japan, and images of the 1986 Chernobyl meltdown, provide convincing evidence of the "low probability, high impact" WMD threat. The

result is an overwhelming fear of WMD use by rogue states on the part of international policy makers and security professionals.

DTRA's current focus, particularly within its Eastern Operations Division, is to prevent rogue and failing states from proliferating WMD. National economic survival among these states encourages WMD proliferation, such as the example seen in North Korea who uses the threat of WMD employment to gain respect in the international community. Non-state supported actors, such as Al Qaeda, are equally able to obtain WMD in order to attack against Western targets. The lack of sufficient information to address these threats may be a result of a lack of intelligence gained through national security architecture reductions during from the early 1990's through the early 2000's. The impact left DTRA with insufficient threat reduction information to support WMD security operations.[5]

When the national focus was on a state threat such as the Soviet Union, intelligence and security operations were much more focused. State actors fight in more rational ways such that predictable and accurate intelligence can focus toward a specific threat. On the other hand, non-state actors seem to operate without such clear rationality, in areas not easily susceptible to conventionally intelligence collection. DTRA now focuses its intelligence collection and collaborative threat reduction on this spectrum of "information darkness.[6]

Diplomatic, information, military, and economic (D.I.M.E.) national elements of power provide the framework under which DTRA conducts global WMD security operations. Over the past seven years, the Bush Administration has provided a number of guiding directives to various agencies in addressing the WMD threat. The National

Military Strategy to Combat Weapons of Mass Destruction (NMS-CWMD) constitutes one of the primary directives that clearly articulate DoD responsibility in conducting strategic WMD security operations. The cornerstone of this document's operational reach, and DTRA's mission task list, is derived from six guiding principles:

(1) Refining an active, layered defense-in-depth

(2) Providing situational awareness and integrated command and control

(3) Ensuring global force management

(4) Conducting capabilities-based planning

(5) Ensuring an effects-based approach

(6) Ensuring assurance[7]

DTRA History, Structure, and Mandate

> *"When we talk about a WMD event, it won't be with 20 or 100 people affected. It will be 120,000 people or more, with another 48,000 dying in about 48 hours after the event. With staggering numbers of people needing assistance, we need to ensure that we in DoD don't have to call more than one phone number to get help for our people."*
>
> Kay Peterson[8]

Global WMD security challenges of the 1990's demanded the creation of a new, progressive and strategically-focused agency to address three national security objectives: emerging global terrorism/extremism, the status of U.S. nuclear deterrence forces, and DoD's self-realization that its non- and counter-proliferation WMD missions and capacity needed enhancements.[9]

The 1997 Defense Reform Initiative, conceived by then Secretary of Defense William Cohen, led to the consolidation of a number of agencies - including the Defense Special Weapons Agency, the Chemical Biological Defense Program, and the On-Site Inspection Agency - into what is now known as the Defense Threat Reduction Agency.[10] In addition to the agencies combined to form DTRA, a number of other partnerships were

deemed essential to the success of DTRA. The Department of Energy (DoE), because of its increased focus on Former Soviet Union nuclear weapons and associated facilities, was identified as one critical partner. DoE possesses a significant technical history of improvised nuclear and radiological dispersion device threat research, and would enhance DTRA's real-time analysis division. Additionally, DTRA forged an early relationship with Joint Task Force-Civil Support, for whom much of DTRA's consequence management mission was created to support.[11]

DTRA's acceptance as a key support agency was not initially well received within DoD hierarchy. The challenge for any military support unit or defense supporting agency is to convince an operational force that the support provided to the war fighter is essential to its success. Often times, units and agencies that fall into this realm discover it is difficult to convince the war fighter that the capabilities they bring to the battlefield is: (1) worth the effort to involve them in extended planning and collaboration, and (2) worth the continued, long-term investment in the combat support capability.

Given this history, a better analysis of DTRA's contribution to the global WMD nonproliferation can be examined. Key considerations posed include: what is DTRA's contribution to WMD security operations - relative to central orchestration of a standard approach to threat mitigation, and how effective is its interagency information-sharing capacity?

As a combat support agency to the U.S. combatant commanders, DTRA's mission is to safeguard the United States and its allies from weapons of mass destruction (WMD)(chemical, biological, radiological, nuclear, explosive) and conventional weapons through the execution of technology security activities, cooperative threat reduction

programs, arms control treaty monitoring, and on-site inspections. The agency supports U.S. nuclear deterrence and provides technical support on matters of weapons of mass destruction to all components of the Department of Defense.[12] In essence, DTRA provides the technical and analytical expertise required, primarily but not restricted to, the U.S. Strategic Command and other government agencies/organizations upon request, as the action arm of the WMD mandate.[13]

DTRA Enterprise Structure

DTRA coordinates the efforts of its almost 2,000 person agency (approximately 500 of whom are military) with a $2.6 billion fiscal budget through five internal divisions and the prosecution of seven standing campaign plans.[14] These plans account for, control, reduce, and provide mitigation plans to counter the proliferation of conventional and CBRNE materials. DoD measures DTRA's effectiveness in accomplishing this by focusing on eight WMD mission areas (as depicted in the NMS-CWMD.) Its operational divisions, termed "enterprises," depicted in Figure 1, are:

- A Business Enterprise, which oversees internal operations such as human resources, occupational health and safety, acquisitions, and information management;

- A Combating Weapons of Mass Destruction Enterprise, which oversees WMD support provided to U.S. STRATCOM and other critical event planning agencies to facilitate command and control communications, training, planning and modeling, and technical support requirements;

- A Research and Development Enterprise, which oversees all scientific experimentation and technological acquisition to support WMD operations.

- An Operations Enterprise, a three-prong approach division which constitutes the main action arm of the agency and conducts all field operations and inspections that support the

agency's non-proliferation mandate. Its three internal sections are: combat support (NMS-CWMD consequence management pillar), on site inspections (NMS-CWMD non-proliferation pillar, and cooperative threat reduction (NMS-CWMD counter- proliferation pillar.)[15]

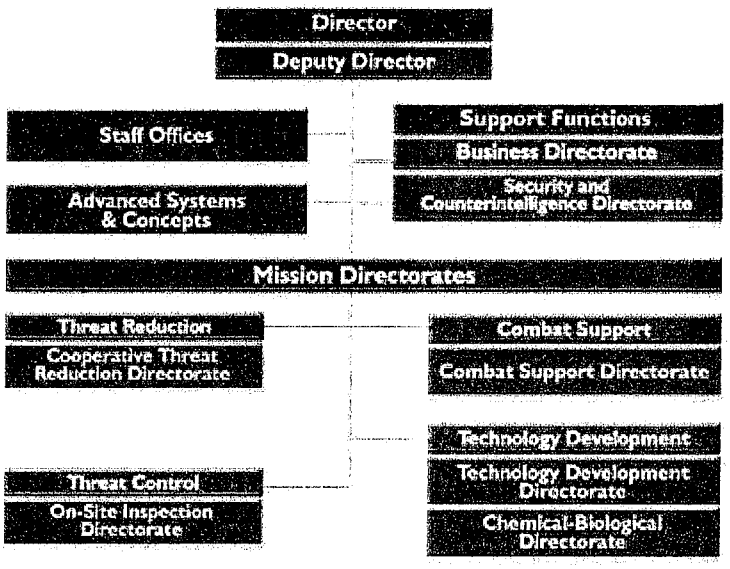

Figure (1)

Global WMD security operations demand an extremely complex framing of the problems and challenges associated with catastrophic weapons. Most of these challenges involve human actors and their actions and include conventional threats (potential attacks by hostile state actors such as North Korea and Iran), naturally occurring threats (facility destruction due to natural and/or manmade events), and non-traditional threats (conventional and/or nuclear weapon or "dirty bomb" attacks by extremists.)

DTRA Campaign Plans

Because of the range of possible methods and means of attack by hostile agents, DTRA aligns its agency focus within a military relevance, as seen through the development of campaigns - a series of related operations aimed at accomplishing

strategic and operational objectives within a given time and space.[16] The following standing campaigns articulate day-to-day operations at DTRA:

- Campaign One builds and maintains situational awareness, and the end state is to create the capacity for continual situational awareness of WMD threats and related activities. This effort supports Department of Defense, U.S. government and Allied efforts to prevent the procurement, proliferation, threat of use and/or use of WMD against the United States, its interests and its allies.
- Campaign Two is intended to control WMD materials and systems worldwide, and its end state is to develop new counter-WMD technologies and concepts, implement treaties, interdict WMD, encourage friendly states to do likewise and integrate our efforts with theirs.
- Campaign "X" is to defeat the threat from "loose" nuclear weapons, and its end state is to develop the capabilities to find, fix and secure loose nuclear weapons, and to detect fissile materials such as nuclear devices at long range.
- Campaign Three aims to eliminate the threat from WMD to the war fighter. Its end state is to render WMD attacks as harmless as possible through successful deterrence, defense, response and recovery efforts.
- Campaign Four is designed to enable others to protect the homeland. Its end state, through training, planning, and technology development efforts, supports U.S. Northern Command's desired end state: "A secure U.S. homeland, effectively defended from external threats and aggression, and capable of managing consequences of attacks by state and non-state actors, as well as natural disasters."
- Campaign Five is designed to transform the deterrent. The end state supports the Combatant Commanders' ability to hold WMD and its associated infrastructure and leadership at risk through technology development and operational support.

- Campaign Six, the business excellence campaign, aids the agency in successful achievement of its mission by streamlining business processes; by offering continuous, global, secure information access and by acquiring and retaining the best workforce for the agency.[17]

CHAPTER 3

Introduction

This chapter more fully describes the missions and means by which DTRA addresses modern WMD threats worldwide.

Functional Area Mission Assessment

When the average security and intelligence community professional considers the role that DTRA plays in WMD operations, particularly in the supporting establishment (continental U.S.-based installations), the 6-8 member Joint Service Integrated Vulnerability Assessment (JSIVA) team is what normally comes to mind. This specialized team was put to full order status following the Khobar Towers attack of 1996 and functions as an installation commander's primary joint staff assistance in assessing an installation's antiterrorism/force protection plan and operations.[18]

Preparation for and undergoing an inspection, which occurs every three years, is a major undertaking and is widely publicized and regarded in the public safety and force protection communities. However, in order to properly analyze and fully appreciate DTRA's capacity to combat extended WMD threats, provide WMD combat support services to combatant commanders, and ensure transparency of its WMD security operations, an analysis of DTRA's operations will be examined through three of the eight WMD missions stipulated in the NMS-CWMD: treaty and agreement support (the global agreements and partnerships that contribute to nonproliferation and international collaboration), threat reduction cooperation (actions on the ground to prevent WMD incidents from ever taking place), and WMD consequence management (actions taken when the foregoing missions have failed to prevent an incident.)[19]

Treaty and Agreement Support

Treaty and Agreement Support encompass those activities that support U.S. and international efforts to dissuade or prevent hostile actors from acquiring or proliferating WMD and deny them access to WMD-relevant capabilities.[20] This functional mission area is relevant to DTRA campaigns 1, 2, and X.[21] DTRA conducts treaty enforcement activities each year by providing military and civilian inspectors, escorts, liaison officers, and/or trainers who participate in multi-national teams.

In 1987, the Intermediate Range Nuclear Forces treaty was signed by then President Reagan and former Soviet President Mikhail Gorbachev. This groundbreaking legislation led to the creation of the On-Site Inspection Agency (OSIA.) Under OSIA, whose title changed to the On-Site Inspection Directorate (OSID) upon DTRA's activation in 1998, the following divisions exist: Arms Control Interagency Liaison, Chemical/Biological Division, European Operations, Open Skies, Operations Support, and Strategic Arms Reduction Treaty (START)/Nuclear divisions.[22] See Figure 2.

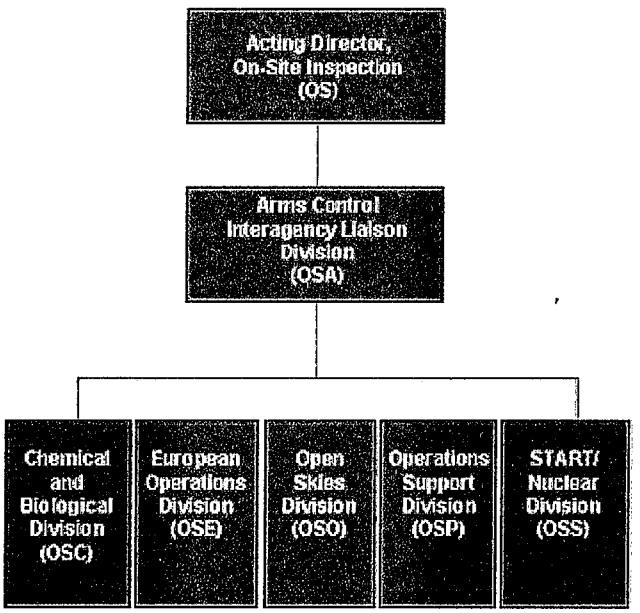

Figure (2)

Over the last twenty years, the mission of OSID has grown steadily and significantly. Having started out enforcing a single bilateral nuclear arms reduction treaty, it has become one of the lead agencies to enforce a number of multilateral treaties and agreements, to include the Conventional Armed Forces in Europe and the Chemical Weapons Convention Treaties.[23] OSID has also maintained a conflict resolution mission, which entails supporting efforts such as the Bosnia Peace Process and the United Nations on Iraq mandates.[24] Treaty and agreement support encompasses one of the primary and most critical missions that DTRA undertakes towards enhancing global WMD security operations.

On November 19, 1990, then-President George Bush and 21 other heads of state from NATO and former Warsaw Pact nations signed the Conventional Armed Forces in Europe (CFE) Treaty. While the Treaty was based on the Cold War NATO vs. Warsaw Pact scenario, responsibility for implementation fell to individual nations within both groups of states, termed the Western Group and the Eastern Group.[25]

The main purpose of this Treaty is to reduce the risk of surprise attack and massive conventional war in the heart of Europe. It also has an ancillary purpose of preventing proliferation of conventional weapons that may be redirected for WMD use if the proper safeguards are not maintained. The Treaty limited five categories of weapons among its signatories: armored combat vehicles, artillery, attack helicopters and combat aircraft, and tanks. This particular Treaty requires states to reduce their inventory of combat equipment in excess to specified limits within 40 months of entry into the Treaty. Nations negotiated their limits within each group of states, based on the group's overall

limits. To assist with effective "peer nation" oversight, groupings of nations were developed and assigned group "zones" to which they would be a part, and were then responsible to that zone for Treaty compliance and enforcement.[26]

Initially, DTRA's European Operations Division conducted 70 CFE-related inspections per year of Eastern Group countries (former Eastern Bloc areas) and escorted approximately another 12 inspections per year to U.S. facilities in Europe. After a majority of declared facilities were inspected, the number of inspections was reduced to approximately 25 inspections of foreign and 8-10 U.S. facility compliance inspections per year. Under DTRA's treaty enforcement, a significant number of facilities were dismantled and/or demolished as a result of lingering WMD threats following the Cold War and the demise of the Soviet Union.[27] To a measurable extent, the WMD threat posed by proliferated, loosely accounted for conventional weapons was mitigated.

DTRA's treaty enforcement mission facilitates the prevention of another global conflict on the scale of a world war. As a portrayal of what happens when treaty enforcement fails, consider the ramifications of Iraq prior to the 2003 multi-national invasion. Between these two events – from a country willing to submit to aerial observation to a country unwilling to submit to WMD inspections – one will find DTRA in an occasional politico-military quagmire attempting to enforce its mandate and enhance WMD security operations.

Threat Reduction Cooperation

Threat Reduction Cooperation are those activities undertaken with the consent and cooperation of host nation authorities to enhance physical security, emplace detection equipment, reduce, eliminate, redirect and/or protect a state's WMD program and

capabilities.[28] This functional mission area is relevant to DTRA campaigns 1, 2, X, and 3.[29]

An amendment to the formally titled Conventional Armed Forces in Europe Treaty Implementation Act, which was renamed the "Soviet Nuclear Threat Reduction Act" and further renamed the Cooperative Threat Reduction (CTR) program, was ratified by Congress in 1991 and implemented immediately.[30] The U.S. State Department manages the overall threat reduction program and executes the policy through DTRA and other organizations. Overall, over $5.9 billion has been given to several former Soviet Union states in their efforts to become non-nuclear states.[31]

Through DTRA's efforts, an estimated sixteen metric tons of bulk chemical weapons agents, and potential WMD proliferation materials, was recently destroyed via incinerators in Albania.[32] Political and interagency coordination by DTRA's European Operations Division personnel, particularly with the U.S. State Department and, to a lesser extent the United Nations, is critical when conducting these activities. The destruction campaign in Albania involved the cooperative efforts of DTRA, Congress (who permitted funding of the Albania chemical weapon destruction effort through the 2004 National Defense Authorization Act), a contracting agency from the U.S. who conducted the destruction, and the cooperation of the Government of Albania.[33] The success of this operation resides in Albania voluntarily declaring possession of these chemical weapon stockpiles, and then seeking U.S. assistance through the CTR program to eliminate it. Participation in cooperative programs such as CTR establishes a favorable reputation conducive to a country's application to NATO and the European

Union. It also allowed DTRA to reduce yet another potential WMD threat from proliferation.

Another success of the CTR program, achieved through DTRA's START and Moscow treaty enforcement, is the dismantlement of over 50 Russian SS-24 intercontinental ballistic missiles.[34] Although it took 8 years to eliminate these missiles from Russian inventory, DTRA demonstrated to worldwide partners the level of commitment that the two countries maintain in eliminating WMD proliferation. As part of this agreement, DTRA and other agencies jointly renovated, equipped, and operated facilities to disassemble, store and eliminate potential for WMD materials to be proliferated by hostile actors.

More relevant to Antiterrorism/Force Protection operations, DTRA conducts Balanced Survivability Assessments (BSA's) for U.S. and allied nations.[35] BSA's assess critical systems storage facilities, hardened structures, and plans of critical infrastructure facilities on a National and Theater level to ensure WMD counter-proliferation standards are met or exceeded. DTRA conducts full spectrum analysis, which focuses on structure/facility compromise due to intentional destruction, neutralization (e.g., with radiological denial weapons), as well as natural disaster/catastrophic risk management.

One of the key attributes to BSA's is incorporation of dedicated blue team (looking outward from a facility viewpoint) and red team assessments. Red team assessments research possible hostile actions, normally attributed to a specific foreign intelligence threat, and recommend increased security measures to mitigate compromise. Blue team assessments evaluate the actions and plans of the installation. These assessments are similar to Joint Service Integrated Vulnerability Assessments (JSIVA's), which ensure

that DoD and federal facilities are routinely assessed for compromise due to natural, accidental, and terrorist-related vulnerabilities.[36]

WMD Consequence Management

WMD Consequence Management includes activities that mitigate the effects of WMD use and assist with the restoration essential operations and services.[37] This functional mission area is relevant to DTRA campaigns X, 4, and 5.

In 1996, Congress enacted the Nunn-Lugar-Domenici Amendment to the Defense Against Weapons of Mass Destruction (WMD) Act, thereby establishing DoD as the lead federal agency in the Emergency Response Assistance program and provided an initial $100 million annually for training courses, new equipment, and exercises to improve the federal, state, and local governments' ability to respond to WMD incidents in the civilian population. It was based on this key legislation that the soon-to-be DTRA would birth its consequence management division in support of the homeland security and response framework.[38]

Typical military backgrounds of CM advisory teams include nuclear weapons specialists, explosive ordnance disposal technicians, and Army Chemical Corps officials. DTRA's modelers are trained in CBRNE modeling tools, weather phenomenology and communications, and their purpose is to translate CBRNE technical information into operational terms for on-the-ground war fighters and commanders. The CM branch also maintains a long-standing memorandum of understanding with the Armed Forces Radiobiology Research Institute that adds significant depth and expertise to the team in health physics, casualty treatment and the effects of ionizing radiation.[39]

As one of the more overt support functions that DTRA offers in support of Homeland Security and Combatant Commands, DTRA is routinely consulted to support WMD consequence management (CM) responsibilities. The CM branch models all potential chemical, biological, radiological, nuclear, and high explosive (CBRNE) incidents. Whether supporting first responders during a simulated or actual terrorist incident, or providing support to any number of state and national exercises, DTRA's CM branch provides extensive scientific and technical analysis through a computer-based reach back capability.[40] Subject matter experts, who are both on staff at DTRA and sub-contracted through a number of support agencies, interpret the information gathered from on the scene, analyze it through computer simulation, and model for accurate depiction of severity and future implications of the attack/event.

DTRA maintains this immediate response capability within its Consequence Management Advisory Team (CMAT) structure. The CMAT is a scalable, task-organized team numbering between 2 and 20 personnel who provide CBRNE advice and assistance, especially to National Guard Civil Support Teams.[41] The team consists of CBRNE planners and modelers, typically joint service personnel, with specialized training in CBRNE and consequence management skills, and a DTRA-created hazard modeling simulation known as a Hazard Prediction and Assessment Capability (HPAC) is the primary software used to model hazards.[42]

DTRA's HPAC research and development began during Operation Desert Storm, when coalition forces articulated the need for an automated hazard prediction system that could predict and assess collateral effects of potential Iraqi WMD usage, highly suspected among its 90+ SCUD launches. Predictions were conducted by sending

requests for analysis from the theater of operations to the Defense Nuclear Agency (a predecessor organization to DTRA) for technical analysis and then sent back into theatre. This presented the war fighter with a delay in receiving actionable information; thus, the HPAC system was created.[43] The HPAC system also predicts downwind hazard areas resulting from a nuclear weapon strike or reactor accident and has the capability to model nuclear, chemical and biological weapon strikes or accidental releases.[44]

To enhance interpretation of HPAC data, DTRA's Operations Center provides additional CBRNE technical reference material, CBRNE situational awareness, and agency command and control to deployed CMAT teams, Combatant Commands and other DoD entities, and interagency organizations and deployed teams. The Operations Center serves as the focal point for DoD CBRNE reach back, and is reinforced by its ability to reach subject matter experts while providing a robust and significant computer and communications network. DTRA's reach back capability and its computer modeling programs are used to predict hazards, assess casualties and enhance planning and support for consequence management and force protection. The reach back capability is available on a 24-hour basis through the DTRA Center for Special Weapons Effects and the Nuclear, Biological and Chemical Threats; Technology Transfer and Resources (CNTTR). The CNTTR provides access to resources, expertise, communications and computer models, and contains collaboration tools that tie together CBRNE subject matter experts and operators in the field, providing voice data and video teleconferencing. This capability is absolutely critical for first responders to CBRNE incidents, particularly during the early stages of a WMD event, when prediction of areas that could be affected by an incident pose additional danger to a wider population.[45]

CHAPTER 4

Marine Corps Applicability

The foregoing information depicts a fraction of the level of depth that DTRA goes to decrease the global WMD threat. The Marine Corps directly contributes to DTRA's mission, insofar as what Marines bring to DTRA, and how DTRA supports Marine Corps operations.

Currently, there are approximately 20 Marines in the total structure of DTRA – representing a token offering to DTRA. The Marine Corps approach is normally "what's in it for the Corps." The research conducted in this study suggests that treaty enforcement (preventing another global war), threat reduction cooperation (essential for the future of force protection abroad), and consequence management experience that is garnered from DTRA assignments are essential to enhancing Marine Corps war fighting and supporting establishment functions.

The Marine Corps' investment in homeland security altogether facilitates a significant planning factor that may be lacking in emergent and catastrophic WMD events. Based on a recent Command and Staff College briefing by the Assistant Secretary for Defense for Homeland Defense & Americas' Security Affairs Tom McHale, Army personnel are more routinely assigned to assist with Defense Support to Civil Authorities (DSCA) missions, yet all military branches are becoming more accustomed to DSCA issues.[46]

Modeling and simulation assists with operational deployments, particularly for humanitarian assistance and other conventional operations (e.g., counter-terrorism mission assignments) that Marine Corps units participate in. Modeling capabilities

contained within the CMAT teams are made available to any DoD agency that requests that support. One interview conducted of a current DTRA military member who recently returned from Iraqi Freedom revealed a case where a building destroyed by coalition forces produced a yellowish gas cloud for several days until the Marine unit withdrew from the area. After the interviewee joined DTRA, he discovered that the information was sent to Marine Corps Division level NBCD officers and systematically maintained at that level, rather than distributed to subordinate operational units.[47]

Marine Corps Military Police/Antiterrorism/Force Protection (PS Division) can include more realistic scenario training support for supporting establishment (SE) personnel and better standardization by using DTRA developed modeling equipment. PS division, the link between Headquarters Marine Corps and the Military Police and Antiterrorism community, serves as the ideal focal point for all matters emergency services and antiterrorism/force protection. With further education on DTRA's activities and capabilities, installation-wide exercises at the tactical level could be enhanced.

The Marine Corps operational forces and supporting establishment currently benefit from a limited amount of the services provided by DTRA. However, until the level of operational support provided by DTRA is extended to lower tactical levels, the full utilization of combat support enhancements for wider Marine Corps consumption will not be complete.

CHAPTER 5

Conclusion

DTRA conducts a highly relevant mission that significantly impacts the advancement of WMD security operations in CONUS and abroad. The assigning of military members to facilitate campaign designing to better address emerging threats realized through operational deployments and real-time intelligence helps improve the products that DTRA makes available to DoD entities. Based on the 10-year history of the agency as is currently structured, its leaders have done an outstanding job in not only promoting its capabilities and support-nature to strategic and operational forces, but analyzing its internal practices in order to continue effective WMD security operations. With additional focus on international partner agency development, particularly among commonwealth nations (Australia, Canada, Great Britain) and more supportive intelligence collection latitude of data to support computer modeling in friendly countries, DTRA's threat management capabilities will be exponentially increased to truly support global management and mitigation operations.

Endnotes

[1] This history of terminology was provided by Col (Ret) Roy Williams, a career Army chemical officer, during a class given at Marine Corps Command and Staff College, 29 January 2008.
[2] Most of the definitions provided were derived from Joint Publication 3-40, Joint Doctrine for Combating Weapons of Mass Destruction.
[3] www.makingthemodernworld.org.uk
[4] Ibid
[5] Interviews conducted with DTRA personnel during March 2008.
[6] Ibid
[7] National Military Strategy-Combat Weapons of Mass Destruction, February 2006
[8] Kay Patterson, "WMD Symposium plays to a full house," *DTRA Connection*, vol. 2, no. 3, pg. 8 (August 2000)
[9] Joseph P. Harahan, Ph.D. and Robert J. Bennett, Captain, U.S. Army, Creating the Defense Threat Reduction Agency," DTRA History Series, U.S. Department of Defense, January 2002
[10] Ibid
[11] Ibid
[12] Ibid
[13] Department of Defense Instruction 5105.62 of 28 November 2005
[14] DTRA website, www.dtra.mil, and from *Defense Threat Reduction Agency* fact sheet, January 2008
[15] Ibid
[16] Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms
[17] DTRA website, www.dtra.mil, and from *Defense Threat Reduction Agency* fact sheet, January 2008
[18] *Joint Staff Integrated Vulnerability Assessments* fact sheet, January 2008
[19] National Military Strategy-Combat Weapons of Mass Destruction, February 2006
[20] Ibid
[21] DTRA website, www.dtra.mil, and from *Defense Threat Reduction Agency* fact sheet, January 2008
[22] DTRA website, www.dtra.mil
[23] *Conventional Armed Forces in Europe and Chemical Weapons Convention* fact sheets, January 2008.
[24] DTRA *Conventional Armed Forces in Europe (CFE) Treaty* fact sheet, January 2008
[25] DTRA *Conventional Armed Forces in Europe (CFE) Treaty* fact sheet, January 2008
[26] Ibid
[27] Ibid
[28] National Military Strategy-Combat Weapons of Mass Destruction, February 2006
[29] Information was derived from DTRA's website, www.dtra.mil, and from *Defense Threat Reduction Agency* fact sheet, January 2008
[30] DTRA *Cooperative Threat Reduction Program* fact sheet, January 2008
[31] DTRA Cooperative Threat Reduction Fact Sheet, January 2008
[32] DTRA *Chemical Weapons Elimination in Albania* and *Chemical Weapons Convention* fact sheets, January 2008
[33] Ibid
[34] DTRA Cooperative Threat Reduction Program Eliminates Russian SS-24 ICBM System Fact Sheet, April 2008
[35] DTRA Balanced Survivability Assessments Fact Sheet, January 2008
[36] Ibid
[37] National Military Strategy-Combat Weapons of Mass Destruction, February 2006
[38] Joseph P. Harahan, Ph.D. and Robert J. Bennett, Captain, U.S. Army, Creating the Defense Threat Reduction Agency," DTRA History Series, U.S. Department of Defense, January 2002
[39] Interviews conducted with Lieutenant Colonel Alicia GB Smith, DTRA CMAT Operations Chief, March 2008
[40] DTRA consequence management materials and modeling products were prepared for Marine Corps Command and Staff College's National Response to Catastrophic and Destructive Threats exercise, conducted during the writing of this thesis, April 2008.
[41] DTRA and Consequence Management Fact Sheet, January 2008

[42] DTRA Hazard Prediction and Assessment Capability Fact Sheet, January 2008
[43] Joseph P. Harahan, Ph.D. and Robert J. Bennett, Captain, U.S. Army, Creating the Defense Threat Reduction Agency," DTRA History Series, U.S. Department of Defense, January 2002
[44] Ibid
[45] DTRA and Consequence Management Fact Sheet, January 2008
[46] Lectures and personal discussions with the AS/D, HD and other FEMA assigned personnel, April 2008.
[47] Non-attributed interviews with DTRA personnel, March 2008